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10/774,584	02/10/2004	Yao-Ching Stephen Chen	SVL920030107US1	9752

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EXAMINER	
SYED, FARHAN M	
ART UNIT	PAPER NUMBER
2165	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	**Application No.** 10/774,584	**Applicant(s)** CHEN ET AL.	
	Examiner FARHAN M. SYED	**Art Unit** 2165	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *27,28,30,31,33,34,36,39 and 41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *27,28,30,31,33,34,36,39 and 41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *(See Office Action)*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. Claims 27-28, 30-31, 33-34, 36, 39, and 41 are pending. Claims 1-26 were previously cancelled. The Examiner acknowledges amended claims 27, 33, and 39 and cancelled claims 29, 32, 35, 37, 38, and 40.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 11 July 2008 is being considered by the examiner.

Response to Remarks/Argument

3. Applicant's arguments, see page 11, filed 05 August 2008, with respect to claims 27, 33, and 39 have been fully considered and are persuasive. The 35 U.S.C. 112, 2nd paragraph, rejection of a Non-Final Office Action, mailed 15 February 2008 has been withdrawn.

4. Applicant's arguments, see page 11, filed 05 August 2008, with respect to the specification have been fully considered and are persuasive. The objection of a Non-Final Office Action, mailed 15 February 2008 has been withdrawn.

5. Applicant's arguments with respect to claims 27-28, 30-31, 33-34, 36, 39, and 41 have been considered but are moot in view of the new ground(s) of rejection.

The Examiner's rejections of the claims, now set forth are in light of the applicant's arguments against the art applied, But applied in the modified position therefore, the arguments are deemed moot.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 27-28, 30-31, 33-34, 36, 39, and 41 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As per claims 27-28, 30-31, 39 and 41, the claims are rejected as falling under the judicial exception of an abstract idea which lacks a useful, concrete, and tangible result. A claimed series of steps or acts for which there does not appear to be disclosed a result in a useful, concrete, and tangible result are not statutory within the meaning of 35 USC 101. In the instant case, the claims recite, "building," "forming," "sorting," and "creating." However, no useful, concrete, and tangible result is disclosed in the instant application as originally filed. For example, "writing said data," "updating said data," "sending said data" being claimed at the end of the claim may comprise a useful, concrete, and tangible result. Absent such a disclosed result, however, the claims are not statutory.

As per claims 33, 34, and 36, the claims recite an article of manufacture comprising having computer readable program code. The claims lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. They are clearly not a series of steps or acts to be a process nor are they a combination of chemical compounds to be a composition of matter. As such, they fail to fall within a statutory category. They are, at best, functional descriptive material *per se*.

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." Both types of "descriptive material" are nonstatutory when claimed as descriptive material *per se*, 33 F.3d at 1360, 31 USPQ2d at 1759. When <u>functional</u> descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994)

Merely claiming <u>non</u>functional descriptive material, i.e., abstract ideas, stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, does not make it statutory. See *Diehr*, 450 U.S. at 185-86, 209 USPQ at 8 (noting that the claims for an algorithm in *Benson* were unpatentable as abstract ideas because "[t]he sole practical application of the algorithm was in connection with the programming of a general purpose computer.").

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 27-28, 30-31, 33-34, 36, 39, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable by a non-patent literature titled "An Efficient XML Schema Typing System" by Wang, Nina and et al., pages 1-21, published 18 Nov. 2003 (previously presented and known hereinafter as Wang) in view of a non-patent literature titled "A Model for Compound Type Changes Encountered in Schema Evolution" by Lerner, Barbara, pages 83-127, published March 2000 (known hereinafter as Lerner).

As per claim 27, Wang teaches a computer-based method for compiling a structured document schema into type annotation records comprising steps of: a. building a type hierarchy ordered tree from structured document (i.e. *"Figure 1 shows the architecture of the XML typing module implementation. The main components are a Generic XML Parser, a Scanner Pool, the XML Typing engine, and an XML Schema Compiler. The XML Schema compiler compiles an XML Schema to automata encoding storage format."*)(Section 1.1); b. forming (i.e. *"new set T is introduced"* The preceding text clearly indicates that creating is the introduction of new set T.)(section 3.1) a complete typing of said tuples (T_s and T_c are sets of tuples)(section 3.4); c. sorting said typing set by their first field (see section 3.1); e. creating a typing array by concatenating typing tuples in resulting ambiguity typing sequences of (d) (section 3.5.1); f. for each type record node, N, in created typing array, if the intersection of a set of tuples in N with any ambiguity typing sequence is not empty, then replacing first typing tuple in N by typing tuple having offset, wherein offset represents a position of an ambiguity type in a given ambiguity typing sequence (see Figure 6 for illustration of aforementioned limitation)(see sections 3.5.1 and 3.5.2); g. creating type indexing data structure and indicating ambiguity type for each type name (i.e. type directory)(see Figure 9); and h. outputting said created index structure (i.e. "runtime engine")(see section 4, Implementation Overview).

Wang does not explicitly teach hierarchy ordered tree; derivation of relations among types in said structured document and determining one or more tuples for each types in said structured documents; d. creating, from sorted tuples in (c), ambiguity typing sequences for tuples having a common first field with having a unique second field, collecting and sorting a third field from ambiguity typing sequences, assigning a unique offset number to each sorted third field, and arranging said ambiguity typing sequences based on offset numbers.

Lerner teaches hierarchy ordered tree (i.e. B tree uses indexing which indicates that some aspect of hierarchy exists within the B Tree)(see section 11.2.2.5; page 39; see also Figure 27 for illustration); derivation of relations among types in said structured document and determining one or more tuples for each types in said structured documents (see Figure 18 that teaches derivation rules generated for the TAOS example)(pages 32-34); d. creating, from sorted tuples in (c), ambiguity typing sequences for tuples having a common first field (Section 7 describes compound type changes that includes creating from sorted tuples ambiguity typing sequences for tuples to have a common first field.)(page 3) with having a unique second field, collecting and sorting (see Figure 9 which displays a unique second field for collecting and sorting.)(pages 15-20; and at least section 9 and 9.2) a third field from ambiguity typing sequences, assigning a unique offset number to each sorted third field, and arranging said ambiguity typing sequences based on offset numbers (Figure 12 teaches a third field from ambiguity typing sequences, assigning a unique offset number to each sorted third field and arranging said ambiguity typing sequences based on offset numbers).

It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to modify the teachings of Wang with the teachings of Bouchou to include hierarchy ordered tree; derivation of relations among types in said structured document and determining one or more tuples for each types in said structured documents; d. creating, from sorted tuples in (c), ambiguity typing sequences for tuples having a common first field with having a unique second field, collecting and sorting a third field from ambiguity typing sequences, assigning a unique offset number to each sorted third field, and arranging said ambiguity typing sequences based on offset numbers with the motivation to efficiently validate an XML document or document fragment against an XML Schema and annotate it with type information (Wang, abstract).

As per claim 28, Wang teaches a computer-based method, wherein said structured document schema is an XML document schema (i.e. "XML document and XML Schema")(section 1).

As per claim 30, Wang teaches a computer-based method , wherein said index structure is any of the following: hash table, binary tree, or B+ tree (see Figure 9).

As per claim 31, Wang teaches a computer-based method, wherein said computer-based method is implemented in a database (i.e. "XML Database system")(section 1).

As per claim 33, Wang teaches an article of manufacturing comprising computer readable program code embodied therein which implements a method for compiling a structured document schema into type annotation records, said computer readable program code comprising: a. building a type hierarchy ordered tree from structured document (i.e. *"Figure 1 shows the architecture of the XML typing module implementation. The main components are a Generic XML Parser, a Scanner Pool, the XML Typing engine, and an XML Schema Compiler. The XML Schema compiler compiles an XML Schema to automata encoding storage format."*)(Section 1.1); b. forming (i.e. *"new set T is introduced"* The preceding text clearly indicates that creating is the introduction of new set T.)(section 3.1) a complete typing of said tuples (T_s and T_c are sets of tuples)(section 3.4); c. sorting said typing set by their first field (see section 3.1); e. creating a typing array by concatenating typing tuples in resulting ambiguity typing sequences of (d) (section 3.5.1); f. for each type record node, N, in created typing array, if the intersection of a set of tuples in N with any ambiguity typing sequence is not empty, then replacing first typing tuple in N by typing tuple having offset, wherein offset represents a position of an ambiguity type in a given ambiguity typing sequence (see Figure 6 for illustration of aforementioned limitation)(see sections 3.5.1 and 3.5.2); g. creating type indexing data structure and indicating ambiguity type for each type name (i.e. type directory)(see Figure 9); and h. outputting said created index structure (i.e. "runtime engine")(see section 4, Implementation Overview).

Wang does not explicitly teach hierarchy ordered tree; derivation of relations among types in said structured document and determining one or more tuples for each types in said structured documents; d. creating, from sorted tuples in (c), ambiguity typing sequences for tuples having a common first field with having a unique second field, collecting and sorting a third field from ambiguity typing sequences, assigning a unique offset number to each sorted third field, and arranging said ambiguity typing sequences based on offset numbers.

Lerner teaches hierarchy ordered tree (i.e. B tree uses indexing which indicates that some aspect of hierarchy exists within the B Tree)(see section 11.2.2.5; page 39; see also Figure 27 for illustration); derivation of relations among types in said structured document and determining one or more tuples for each types in said structured documents (see Figure 18 that teaches derivation rules generated for the TAOS example)(pages 32-34); d. creating, from sorted tuples in (c), ambiguity typing sequences for tuples having a common first field (Section 7 describes compound type changes that includes creating from sorted tuples ambiguity typing sequences for tuples to have a common first field.)(page 3) with having a unique second field, collecting and sorting (see Figure 9 which displays a unique second field for collecting and sorting.)(pages 15-20; and at least section 9 and 9.2) a third field from ambiguity typing sequences, assigning a unique offset number to each sorted third field, and arranging said ambiguity typing sequences based on offset numbers (Figure 12 teaches a third field from ambiguity typing sequences, assigning a unique offset number to each sorted third field and arranging said ambiguity typing sequences based on offset numbers).

It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to modify the teachings of Wang with the teachings of Bouchou to include hierarchy ordered tree; derivation of relations among types in said structured document and determining one or more tuples for each types in said structured documents; d. creating, from sorted tuples in (c), ambiguity typing sequences for tuples having a common first field with having a unique second field, collecting and sorting a third field from ambiguity typing sequences, assigning a unique offset number to each sorted third field, and arranging said ambiguity typing sequences based on offset numbers with the motivation to efficiently validate an XML document or document fragment against an XML Schema and annotate it with type information (Wang, abstract).

As per claim 34, Wang teaches an article of manufacture, wherein said structured document schema is an XML document schema (i.e. "XML document and XML Schema")(section 1).

As per claim 36, Wang teaches an article of manufacture, wherein said index structure is any of the following: hash table, binary tree, or B+ tree (see Figure 9).

As per claim 39, Wang teaches a computer-based method for compiling a structured document schema into type annotation records comprising steps of: a.

building a type hierarchy ordered tree from structured document (i.e. *"Figure 1 shows the architecture of the XML typing module implementation. The main components are a Generic XML Parser, a Scanner Pool, the XML Typing engine, and an XML Schema Compiler. The XML Schema compiler compiles an XML Schema to automata encoding storage format."*)(Section 1.1); b. forming (i.e. *"new set T is introduced"* The preceding text clearly indicates that creating is the introduction of new set T.)(section 3.1) a complete typing of said tuples (T_s and T_c are sets of tuples)(section 3.4); c. sorting said typing set by their first field (see section 3.1); e. creating a typing array by concatenating typing tuples in resulting ambiguity typing sequences of (d) (section 3.5.1); f. for each type record node, N, in created typing array, if the intersection of a set of tuples in N with any ambiguity typing sequence is not empty, then replacing first typing tuple in N by typing tuple having offset, wherein offset represents a position of an ambiguity type in a given ambiguity typing sequence (see Figure 6 for illustration of aforementioned limitation)(see sections 3.5.1 and 3.5.2); g. creating type indexing data structure and indicating ambiguity type for each type name (i.e. type directory)(see Figure 9); and h. outputting said created index structure (i.e. "runtime engine")(see section 4, Implementation Overview).

Wang does not explicitly teach hierarchy ordered tree; derivation of relations among types in said structured document and determining one or more tuples for each types in said structured documents; d. creating, from sorted tuples in (c), ambiguity typing sequences for tuples having a common first field with having a unique second field, collecting and sorting a third field from ambiguity typing sequences, assigning a unique offset number to each sorted third field, and arranging said ambiguity typing sequences based on offset numbers.

Lerner teaches hierarchy ordered tree (i.e. B tree uses indexing which indicates that some aspect of hierarchy exists within the B Tree)(see section 11.2.2.5; page 39; see also Figure 27 for illustration); derivation of relations among types in said structured document and determining one or more tuples for each types in said structured documents (see Figure 18 that teaches derivation rules generated for the TAOS example)(pages 32-34); d. creating, from sorted tuples in (c), ambiguity typing sequences for tuples having a common first field (Section 7 describes compound type changes that includes creating from sorted tuples ambiguity typing sequences for tuples to have a common first field.)(page 3) with having a unique second field, collecting and sorting (see Figure 9 which displays a unique second field for collecting and sorting.)(pages 15-20; and at least section 9 and 9.2) a third field from ambiguity typing sequences, assigning a unique offset number to each sorted third field, and arranging said ambiguity typing sequences based on offset numbers (Figure 12 teaches a third field from ambiguity typing sequences, assigning a unique offset number to each sorted third field and arranging said ambiguity typing sequences based on offset numbers).

It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to modify the teachings of Wang with the teachings of Bouchou to include hierarchy ordered tree; derivation of relations among types in said structured document and determining one or more tuples for each types in said structured documents; d. creating, from sorted tuples in (c), ambiguity typing sequences for tuples having a common first field with having a unique second field, collecting and sorting a third field from ambiguity typing sequences, assigning a unique offset number to each sorted third field, and arranging said ambiguity typing sequences based on offset numbers with the motivation to efficiently validate an XML document or document fragment against an XML Schema and annotate it with type information (Wang, abstract).

As per claim 41, Wang teaches a computer-based method, wherein said computer-based method is implemented in a database (i.e. "XML Database system")(section 1).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Farhan M. Syed whose telephone number is 571-272-7191. The examiner can normally be reached on 8:30AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christian Chace can be reached on 571-272-4190. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/F. M. S./
Examiner, Art Unit 2165

/Christian P. Chace/
Supervisory Patent Examiner, Art Unit 2165